

1. The reason for this administrative amendment is that Northwest Pipeline Corporation (NWP) and Ecology discovered the inability of the Predictive Emissions Monitoring System (PEMS) to accurately predict real-time emissions. This finding is based upon completion of one year of PEMS data gathering and analysis, and Ecology agreed with NWP. There is no change to emission limits in this amendment. Therefore, public notice is not required.
2. NWP owns and operates an existing Mount Vernon Compressor Station (MVCS) located about nine miles east of Mt. Vernon, Washington (48°N 25' 19" latitude, 122°W 12' 58" longitude).
3. MVCS is located within a Class II area that is currently designated in attainment for all national and state air quality standards. PSD-01-09 allowed an expansion to this facility described in findings 6 through 19, below.
4. The site is 57 kilometers (km) from the nearest Class I Area, North Cascades National Park, and within 100 km of four other Class I areas (Alpine Lakes Wilderness, Glacier Peak Wilderness, Olympic National Park, and Pasayten Wilderness).
5. The site is about 45 kilometers from the U.S. - Canadian border.
6. This project consists of:
 - 6.1 Adding one Mars 90-TI3002S (Mars 90S) gas turbine site-rated at 12,787 horsepower (59° F),

- 6.2 Substituting an existing Centaur 40-T4500 upgraded to a Centaur 50-T6100S (Centaur 50S) at 5,950 hp (59° F.) for the originally permitted Centaur 40-T4700S (Centaur 40S) gas turbine site-rated at 4,554 horsepower.
- 6.3 Replacing an existing standby generator with one of larger capacity (450 kW) as originally permitted.
- 6.4 Replacing an existing 2.5 million British thermal units per hour (MMBtu/hr.) heater/boiler with one of larger capacity (4.186 MMBtu/hr. Sellers C100) as originally permitted.
7. This project is subject to New Source Performance Standards (NSPS): 40 CFR Subpart GG (Standards of Performance for Stationary Gas Turbines).
8. The emissions of all air pollutants from the proposed modification are subject to review under Chapter 173-400 WAC, Chapter 173-460 WAC, and the regulations of the Northwest Air Pollution Authority (NWAPA). Chapter 173-400 WAC includes provision for PSD review (WAC 173-400-141). This permit considers only PSD applicable issues. All other air quality related notice of construction approval issues are subject to the Northwest Air Pollution Authority (1600 Second Street, Mt. Vernon, WA).
9. MVCS currently has the potential to emit more than 250 tons per year of any one pollutant that is subject to the federal Clean Air Act. This qualifies MVCS as an existing major stationary source as defined in WAC 173-400-113(1)(b). Any net increases in potential emissions from the site that are considered significant under WAC 173-400-113(1)(a) will be subject to PSD review under WAC 173-400-141.
10. As a result of this project, the net increase in MVCS's potential to emit nitrogen oxides (NO_x) is 62.8 tons per year (TPY).
11. Because MVCS is an existing major stationary source, and the net emissions increase for NO_x is more than 40 tons per year, the project qualifies as a major modification. [WAC 173-400-113(1)(a), WAC 173-400-113(1)(b), WAC 173-400-113(1)(c), and WAC 173-400-113(1)(d)]. As a result, the project is subject to PSD review under WAC 173-400-141. Additionally, the project is subject to federal PSD review because it qualifies as a major modification under federal rules [40 CFR 52.21(b)(2)(i), 40 CFR 52.21(b)(3)(i), and 40 CFR 52.21(b)(23)(i)].
12. Other than NO_x, the net emissions increases of all pollutants subject to regulation under the federal Clean Air Act are below the significance levels specified in 40 CFR 52.21(b)(23)(i). As a result, they are not subject to inclusion in this PSD permit.
13. The PSD permit application was submitted December 4, 2001, and determined to be complete on January 3, 2002.
14. MVCS will operate the standby generator fewer than 500 hours in any calendar year. The limit will be federally enforceable under the conditions of this PSD permit.
15. The Mars 90S turbine, the Centaur 40S turbine, the standby generator, and the heater/boiler being installed for this project will burn only natural gas from the pipeline.
16. Best Available Control Technology (BACT) determinations for NO_x emissions:

- 15.1 Dry low-NO_x control (SoLoNO_x) for the Mars 90S and Centaur 40S turbines.
 - 15.2 Non-selective catalytic reduction for the standby generator.
 - 15.3 Good combustion practice for the Sellers C100 heater/boiler.
17. Allowable emissions from the new emissions units will not cause or contribute to air pollution in violation of:
- 16.1 Any ambient air quality standard;
 - 16.2 Any applicable maximum allowable increase over the baseline ambient concentration.
 - 16.3 National Ambient Air Quality Standards (NAAQS) and PSD increment consumption: Modeling to determine impacts was not required because the applicant demonstrated the impacts to be below modeling significance thresholds.
 - 16.4 Visibility impact in the surrounding Class I areas: The highest modeled impact was a 4.8% degradation which occurred in North Cascades National Park in mid-winter. Federal land manager guidance considers this to be below the "concern" threshold.
 - 16.5 Visibility impact in nearby Class II parks and recreational areas: The highest modeled impact in Mt. Baker Wilderness was a 6.2% degradation in mid-winter, and less than 4% the rest of the year. Federal land manager guidance considers this to be acceptable under PSD procedures and BACT requirements.
18. Ambient impact analysis indicates that there will be no significant pollutant deposition on soils and vegetation in the Class I or Class II areas.
- 17.1 Modeled emissions ambient impact levels are substantially below all secondary NAAQS. This indicates a low likelihood of negative impact on Class II area flora and fauna. No sensitive species have been identified.
 - 17.2 NWP has agreed with the Washington Department of Fish and Wildlife to conduct a nesting survey for bald eagles expected to be in the vicinity of the facility.
 - 17.3 The highest modeled nitrogen deposition in the surrounding Class I areas is less than 50% of the "concern" threshold in federal land manager guidance.
19. No significant effect on industrial, commercial, or residential growth in the Mt. Vernon, Washington area is anticipated as a result of this project.

Ecology finds that all requirements for PSD have been satisfied. Approval of the PSD application is granted subject to the following conditions.

APPROVAL CONDITIONS:

- 1. The Mars 90S turbine, the Centaur 50S turbine, the standby generator, and the heater/boiler being installed for this project:
 - 1.1 Are only allowed to burn natural gas from the pipeline.

- 1.2 NWP shall monitor and report (see Condition 8) the analytical data from the Sumas monitor location regarding the chemical composition of the fuel used to comply with Condition 1.1.
2. The standby generator:
 - 2.1 NWP shall operate the standby generator no more than 500 hours in any consecutive 12-month period.
 - 2.2 NWP shall monitor compliance with Condition 2.1 with:
 - 2.2.1 An hour meter for generator operation.
 - 2.2.2 NWP shall not reset the hour meter without written authorization of Ecology or NWAPA.
 - 2.3 NO_x emissions from the standby generator are limited to not greater than 82 grams per hour.
 - 2.4 NWP shall demonstrate initial compliance with Condition 2.3:
 - 2.4.1 Within 180 days after initial startup, NWP will have a source test performed by an independent testing firm.
 - 2.4.2 The run-time on the standby generator for the initial compliance demonstration test shall not count toward the operating time limit in Condition 2.1.
 - 2.4.3 The source test shall be in accordance with 40 CFR 60 Appendix A, Methods 2, 2A, 2C, or 2D, and Method 7E.
 - 2.4.4 For the source test, NWP shall run the generator at maximum achievable load.
 - 2.4.5 NWP shall determine the emissions rate in units of grams per hour by using the source test results in applicable engineering calculations.
 - 2.4.6 NWP shall submit a test plan to Ecology and NWAPA for approval at least 30 days prior to testing.
 - 2.4.7 Within 90 days of initial startup, NWP will confirm to Ecology in writing that the existing standby generator has been taken out of service.
 - 2.5 NWP shall monitor compliance with Condition 2.3 by periodic NO_x emission performance tests:
 - 2.5.1 NWP shall conduct NO_x emission performance tests not less frequently than once every 500 hours of operation.
 - 2.5.2 NWP may conduct the periodic performance tests by use of a portable NO_x analyzer verified as accurate in accordance with the process outlined in Condition 6.
 - 2.5.2.1 Testing shall be in accordance with USEPA Designated Conditional Test Method 34. An alternate test method may be used if approved in writing by Ecology or NWAPA at least 30 days prior to its first application.

2.5.2.2 NWP shall follow the currently approved performance test procedure until acquiring approval from Ecology or NWAPA for a revised procedure.

2.5.2.3 For the source test, NWP shall run the generator at maximum achievable load.

2.5.3 NWP shall determine the emissions rate in units of grams per hour by using the source test results in applicable engineering calculations.

3. The 4.186 MMBtu/hr. Sellers C100 boiler:

3.1 The NO_x emissions concentration from the boiler stack is limited to not greater than 34 parts per million on a dry volumetric basis (ppmdv) over a twenty-four hour average when corrected to 3.0 percent oxygen.

3.2 NWP shall demonstrate initial compliance with Conditions 3.1:

3.2.1 Within 180 days after initial startup, performed by an independent testing firm.

3.2.2 By source test in accordance with 40 CFR 60 Appendix A, Methods 7E and 19.

3.2.3 NWP shall submit a test plan to Ecology and NWAPA for approval at least 30 days prior to testing.

3.2.4 Within 90 days of initial startup, NWP will confirm to Ecology in writing that the existing 2.5 MMBtu/hr heater/boiler has been taken out of service.

3.3 NWP shall monitor compliance with Condition 3.1 by periodic NO_x emission performance tests:

3.3.1 NWP shall conduct NO_x emission performance tests not less frequently than once each calendar year.

3.3.2 NWP may conduct the periodic performance tests by use of a portable NO_x analyzer capable of adjustment to the 3% oxygen concentration basis, and verified as accurate in accordance with the process outlined in Condition 6.

3.3.2.1 Testing shall be in accordance with USEPA Designated Conditional Test Method 34. An alternate test method may be used if approved in writing by Ecology or NWAPA at least 30 days prior to its first application.

3.3.2.2 NWP shall follow the currently approved performance test procedure until acquiring approval from Ecology or NWAPA for a revised procedure.

3.4 NO_x emissions from the boiler are limited to not greater than

3.4.1 4 lbs/calendar day.

3.4.2 0.66 tons in any twelve consecutive months.

3.5 NWP shall monitor compliance with Condition 3.4 by

3.5.1 Keeping a log of the operating hours for the boiler, and

- 3.5.2 Using the following to determine the mass NO_x emissions:
 - 3.5.2.1 The most recent performance test results intended to satisfy Condition 3.3.1.
 - 3.5.2.2 Assume maximum achievable fuel consumption for all boiler operating hours.
 - 3.5.2.3 Use the appropriate F-factor from 40 CFR Part 60, Appendix A Method 19 to estimate exhaust gas volumetric flowrate.
- 4. For the Mars 90S and Centaur 50S combustion turbines:
 - 4.1 Startup is defined as any operating period that is ramping up from less than 90% of full load, and less than 15 minutes has elapsed since fuel was introduced to the turbine after the immediately preceding shut down.
 - 4.2 Shutdown is defined as any operating period below 90% of full load, and fuel feed has continued for not more than 15 minutes after going below 90% of full load operation.
 - 4.3 NWP shall keep a record of each startup and shutdown event.
- 5. Emissions of nitrogen oxides (NO_x) for the combustion turbines are limited as follows:
 - 5.1 For the Mars 90 combustion turbine:
 - 5.1.1 Not greater than 25 parts per million NO_x emission concentration on a dry volumetric basis (ppmdv) over a three hour average when corrected to 15.0 percent oxygen, ISO.
 - 5.1.2 Condition 5.1.1 is relieved during startup and shutdown.
 - 5.1.3 Mass emissions of NO_x shall not exceed
 - 5.1.3.1 258 lbs. NO_x /calendar day.
 - 5.1.3.2 43.6 tons of NO_x for any consecutive twelve month period.
 - 5.1.4 NWP shall count NO_x emissions during startup and shutdown towards monitoring compliance with the twelve month mass emission limit in Condition 5.1.3.2 at a rate of 4 lbs. NO_x per startup or shutdown.
 - 5.1.5 NWP shall demonstrate initial compliance with Condition 5.1.1:
 - 5.1.5.1 Initial compliance shall be demonstrated within 180 days after initial startup, performed by an independent testing firm.
 - 5.1.5.2 Initial compliance shall be demonstrated in accordance with 40 CFR 60 Subpart GG and 40 CFR 60 Appendix A, Method 20 except that the instrument span shall be reduced as appropriate.
 - 5.1.5.3 NWP shall submit a test plan to Ecology and NWAPA for approval at least 30 days prior to testing.

5.1.6 Compliance monitoring:

5.1.6.1 NWP shall monitor compliance with Conditions 5.1.1 and 5.1.3.1 by measuring NO_x emissions from the turbine exhaust stack.

5.1.6.1.1 The turbine exhaust stack NO_x concentration shall be monitored not less frequently than once every 336 hours of turbine operation.

5.1.6.1.2 NWP may conduct these measurements by use of a portable NO_x analyzer capable of adjustment to the 15% oxygen concentration basis, and verify as accurate in accordance with the process outlined in Condition 6.

5.1.6.1.2.1 Portable NO_x analyzer testing shall be in accordance with USEPA Designated Conditional Test Method 34.

5.1.6.1.2.2 NWP shall follow the currently approved performance test procedure until acquiring approval from Ecology for a revised procedure.

5.1.6.1.2.3 NWP shall perform three consecutive tests using the portable analyzer. If the average of the three test results indicates noncompliance with Condition 5.1.1, NWP shall continue testing at least every 15 minute until 3 hours of testing has been completed. If at the end of the 3-hour testing, the average of the test results show noncompliance, NWP shall shut down the unit as soon as is practical and contact the NWAPA as promptly as possible and in no event more than 12 hours later. However, if data shows compliance with Condition 6, no action is required other than reporting as specified in Condition 8.3.6.3.7.

5.1.6.2 Within twenty days of the end of each month, pursuant to Condition 5.1.3.2, NWP shall determine the tons of NO_x emissions from the turbine for the most recent consecutive twelve months. For this calculation, NWP shall utilize a time-weighted average of the relevant stack test results wherein the results of each source test shall be the presumed emission rate until the next source test.

5.2 For the Centaur 50S combustion turbine:

5.2.1 Not greater than 25 parts per million NO_x emission concentration on a dry volumetric basis (ppmdv) over a three hour average when corrected to 15.0 percent oxygen, ISO.

5.2.2 Condition 5.2.1 is relieved during startup and shutdown.

- 5.2.3 Mass emissions of NO_x shall not exceed
 - 5.2.3.1 106 lbs. NO_x/calendar day.
 - 5.2.3.2 18.5 tons of NO_x for any consecutive twelve month period.
- 5.2.4 NWP shall count emissions during startup and shutdown towards monitoring compliance with the twelve-month mass emission limit in Condition 5.2.3.2 at a rate of 2 lbs. NO_x per startup or shutdown.
- 5.2.5 NWP shall demonstrate initial compliance with Condition 5.2.1:
 - 5.2.5.1 Initial compliance shall be demonstrated within 180 days after initial startup, performed by an independent testing firm.
 - 5.2.5.2 Initial compliance shall be demonstrated in accordance with 40 CFR 60 Subpart GG and 40 CFR 60 Appendix A, Method 20, except that the instrument span shall be reduced as appropriate.
 - 5.2.5.3 NWP shall submit a test plan to Ecology and NWAPA for approval at least 30-days prior to testing.
- 5.2.6 Compliance monitoring:
 - 5.2.6.1 NWP shall monitor compliance with Conditions 5.2.1 and 5.2.3.1 by measuring the NO_x concentration of the turbine exhaust stack.
 - 5.2.6.1.1 The turbine exhaust stack NO_x concentration shall be monitored not less frequently than once every 336 hours of turbine operation.
 - 5.2.6.1.2 NWP may conduct these measurements by use of a portable NO_x analyzer capable of adjustment to the 15% oxygen concentration basis, and verify as accurate in accordance with the process outlined in Condition 6.
 - 5.2.6.1.2.1 Portable NO_x analyzer testing shall be in accordance with USEPA Designated Conditional Test Method 34.
 - 5.2.6.1.2.2 NWP shall follow the currently approved performance test procedure until acquiring approval from Ecology for a revised procedure.
 - 5.2.6.1.2.3 NWP shall perform three consecutive tests using the portable analyzer. If the average of the three test results indicates noncompliance with Condition 5.1.1, NWP shall continue testing at least every 15 minute until three hours of testing has been completed. If at the end of three hours of testing, the average of the test results show noncompliance, NWP shall shut down the unit as soon as is practical and conduct the NWAPA as

promptly as possible and in no more than 12 hours later. However, if data shows compliance with Condition 5.1.1, no action is required other than reporting as specified in Condition 8.3.6.3.7.

5.2.6.2. Within twenty days of the end of each month, pursuant to Condition 5.2.3.2, NWP shall determine the tons of NO_x emissions from the turbine for the most recent consecutive twelve months. For this calculation, NWP shall utilize a time-weighted average of the relevant stack test results wherein the results of each source test shall be the presumed emission rate until the next source test.

6. NWP shall verify the accuracy of any portable NO_x analyzers used to satisfy the monitoring requirements of this permit.
 - 6.1 Compliance shall be demonstrated in accordance to 40 CFR 60 Appendix A, USEPA Method 20.
 - 6.2 NWP shall use Condition 6.1 to verify the accuracy of any portable NO_x analyzer prior to its use in satisfaction of the monitoring requirements of this permit.
 - 6.3 Not less than once every calendar year, NWP shall use the approved protocol from Condition 6.1 to verify the accuracy of any portable NO_x analyzer intended to be used in satisfaction of the monitoring requirements of this permit.
 - 6.4 NWP shall keep records of the NO_x analyzer accuracy verifications on site for not less than five years for Ecology or NWAPA review.
7. NWP shall provide safe access and sampling ports for source testing of the standby generator, the heater/boiler, the Mars 90S turbine, and the Centaur 50S turbine being installed for this project, after each final pollution control device:
 - 7.1 Safe access for the standby generator and the heater/boiler shall consist of not less than a man-lift or situation-specific scaffolding.
 - 7.2 Safe access for the Mars 90S turbine, the Centaur 50S turbine shall consist of permanently constructed platforms on the respective stacks.
 - 7.3 The sampling ports shall meet the requirements of 40 CFR, Part 60, Appendix A, Method 20.
 - 7.4 Other arrangements may be acceptable if approved by Ecology prior to installation.
8. NWP shall report the monitoring and process data from MVCS to Ecology and NWAPA as follows:
 - 8.1 Notifications:
 - 8.1.1 Commencement of construction of the project described in Finding 5 of this permit: In accordance with 40 CFR 60.7(1), no later than 30 calendar days after such date.

- 8.1.2 Initial startup of the project described in Finding 5 of this permit: In accordance with 40 CFR 60.7(3), no later than 15 calendar days after such date.
- 8.1.3 Completion of the entry into the operation and maintenance manual of the items specified in Condition 9.
- 8.1.4 In the first quarterly report required under Condition 8.2, certification by the responsible party for the facility that the relevant equipment was installed consistent with the parameters developed pursuant to Condition 9.
- 8.2 Submit reports not less than once each calendar quarter or on another reporting schedule approved by Ecology, and in the format approved by Ecology.
- 8.3 The reports shall include, but not necessarily be limited to, the following:
 - 8.3.1 Certification by the responsible party for the facility that only natural gas from the pipeline has been used as fuel.
 - 8.3.2 Analytical data on the fuel composition per Condition 1.
 - 8.3.3 Certification by the responsible party for the facility that the relevant equipment was operated and maintained in accordance with the operational parameters and practices developed pursuant to Condition 9.2.
 - 8.3.4 For the standby generator:
 - 8.3.4.1 Total hours of operation for the twelve immediately preceding months.
 - 8.3.4.2 The total NO_x mass emissions for the twelve immediately preceding months.
 - 8.3.4.3 Results of any compliance monitoring source tests performed since the last report.
 - 8.3.5 For the 4.186 MMBtu/hr. Sellers C100 boiler:
 - 8.3.5.1 The total NO_x mass emissions for the twelve immediately preceding months.
 - 8.3.5.2 Results of any compliance monitoring source tests performed since the last report.
 - 8.3.6 For each combustion turbine stack:
 - 8.3.6.1 All exhaust stack NO_x concentrations since the last report pursuant to measurement under Conditions 5.1.6.1 and 5.2.6.1.
 - 8.3.6.2 The total NO_x mass emissions for the twelve immediately preceding months ending with each month included in the report.
 - 8.3.6.3 Results of any compliance monitoring source tests performed since the last report including verification of the accuracy of NO_x concentration portable analyzers emissions allowed in Conditions 2.5.2, 3.3.2, 5.1.6.1.2, and 5.2.6.1.2.

- 8.3.6.3.1 The time of the occurrence.
 - 8.3.6.3.2 Magnitude of the emission or process parameters excess.
 - 8.3.6.3.3 The duration of the excess.
 - 8.3.6.3.4 The probable cause.
 - 8.3.6.3.5 Corrective actions taken or planned.
 - 8.3.6.3.6 Any other agency contacted.
 - 8.3.6.3.7 For each occurrence of extended (3-hr) NO_x monitoring as per Condition 5.1.6.1.2.3 that ultimately shows compliance with Condition 6, include: (1) detailed test result and (2) detailed emission unit operating data during the test.
- 8.4 NWP shall maintain MVCS monitoring and process records for at least five years.
 - 8.4.1 NWP shall inform Ecology and NWAPA on the location of the monitoring and process records.
 - 8.4.2 NWP shall provide Ecology and NWAPA with the monitoring and process records for any period within the five year archive within ten working days of request.
 - 8.4.3 The monitoring and process records maintained in the five year archive shall include but not necessarily be limited to the following:
 - 8.4.3.1 Fuel monitoring records pursuant to Condition 1.
 - 8.4.3.2 Operating time records pursuant to Condition 2.2.
 - 8.4.3.3 Operating hours records pursuant to Condition 3.5.1.
 - 8.4.3.4 Record of startups and shutdowns for the Mars 90S and Centaur 40S turbines pursuant to Condition 4.3.
- 9. An operation and maintenance (O&M) manual for the facility:
 - 9.1 Within 90 days of startup, NWP shall identify operational parameters and practices for MVCS.
 - 9.1.1 The operational parameters and practices will constitute proper operation relative to compliance with the emission limitation conditions of this permit.
 - 9.1.2 The operational parameters and practices will be for the standby generator, the 4.186 MMBtu/hr Sellers C100 boiler, and the combustion turbines.
 - 9.2 NWP shall include these operational parameters and practices in the MVCS O&M manual. As a minimum, these shall include:
 - 9.2.1 Manufacturers' operating instructions and design specifications.
 - 9.2.2 Normal operating parameters and design specifications.

- 9.2.3 Updates to reflect any modifications of the equipment or its operating procedures.
- 9.3 NWP shall keep the MVCS O&M manual up to date.
- 9.4 NWP shall assure that the MVCS O&M manual is readily available at the facility for review by state, federal and local agencies.
10. Nothing in this determination shall be construed so as to relieve NWP of its obligations under any state, local, or federal laws or regulations.
11. NWP shall permit the Environmental Protection Agency, state, and local regulatory personnel access to the source upon request for the purposes of compliance assurance inspections. Failure to allow such access is grounds for an enforcement action.
12. This approval shall become invalid if construction of the project is not commenced within eighteen (18) months after receipt of the final approval, or if construction of the facility is discontinued for a period of eighteen (18) months, NWP extends the 18-month period upon satisfactorily showing that an extension is justified, pursuant to 40 C.F.R. 52.21(r)(2) and applicable EPA guidance.

Reviewed by:



07/15/04

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EXPIRES 08-16-04

Approved by:

Stu Clark

Stu Clark, Program Manager
Air Quality Program
Washington State Department of Ecology

7/15/04

Date